

BLUE WATERS

BREAKING THROUGH THE LIMITS

The Eclipse Ecosystem on Blue Waters

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GREAT LAKES CONSORTIUM
FOR PETASCALE COMPUTING



Acknowledgements

- Blue Waters Eclipse Collaboration (including IBM (Beth Tibbitts, Pete Nicholls, I-hsin Chung, and more)), RENCi (Rob Fowler), LSU (Gabrielle Allen, Erik Schnetter), Illinois (Ralph Johnson), NCSA (Al Rossi, Rick Kufrin).
- National Science Foundation

Overall Eclipse Integration Strategy

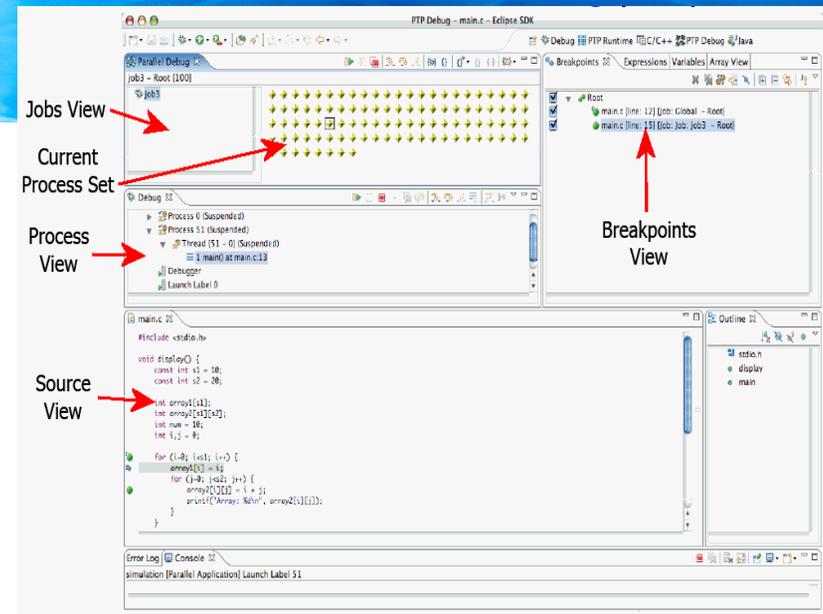
- Combine capabilities from a number of groups to deliver suite of capabilities supporting computational science and engineering
 - Code/Test/Debug
 - Performance Analysis/Assessment
 - Deployment
 - Production Runs

Goals of today's talk

- Trying to understand community needs
- Will present aggregation of current capabilities
- Questions to consider
 - What combination of capabilities becomes truly compelling?
 - What interactions between capabilities are necessary or desirable?
 - What platforms would such capabilities need to be supported on in order to be truly useful?
 - What tools from the community should we consider to integrate for Blue Waters?
 - What use cases should we expect to support “best” with these tools?

Debugging, Performance Tools

- For Blue Waters
 - IBM contributions
 - PERCS scalable debugger
 - HPC Toolkit (traditional performance tools)
 - HPCS Toolkit (make sense of performance data)
- For other platforms
 - PTP Debugger
 - Community contributions (e.g., TAU, RENCİ efforts, etc)



Deploy/Production runs

- Recognize need to deploy codes for private or group use
 - And record information about required environment to correctly run the application
- Production workflow runs
 - Capability from LEAD NSF-funded ITR project

The screenshot displays the Siege application interface with several panels:

- Pwe Summary View:** Shows connection details for 'otfrid.ncsa.uiuc.edu' and a table of submission records.
- Summary:** A table showing overall workflow statistics.
- Workflows:** A list of workflow entries with columns for USER, GROUP, WORKFLOW, and STATE.
- Pwe Workflow View:** Shows details for a specific workflow 'TriggeredFcst-Winter-44'.
- Summary (Workflow View):** A table showing statistics for the selected workflow.
- Graph:** A tree view showing the workflow's nodes and their statuses.
- Exec Info:** A table showing execution details for the current node.

TYPE	UNSB	REDY	PEND	ATTM	SUBM	QUED	ACTV	CNCL	DONE	FAIL	DEAD	DAC
	0	0	0	0	0	0	0	0	18	1	0	0

TYPE	UNSB	REDY	PEND	ATTM	SUBM	QUED	ACTV	CNCL	DONE	FAIL	DEAD	DAC
	0	0	0	0	0	0	0	0	18	1	0	0

USER	GROUP	WORKFLOW	STATE
/C_US/O_National_	Trigger2008	TriggeredFcst-Severe	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Winter	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Conve	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Winter	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Winter	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Winter	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Severe	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Severe	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Winter	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Winter	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Severe	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Severe	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Winter	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Severe	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Severe	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Winter	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Severe	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Conve	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Conve	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Winter	WF_DONE
/C_US/O_National_	Trigger2008	TriggeredFcst-Winter	WF_DONE

NODE	STATUS	LAST UPDATE
INIT	ND_DONE	2008/10/14 06:26:44
PREPARE-0	ND_DONE	2008/10/14 06:33:53
WRF-0-0	ND_DONE	2008/10/14 06:53:59
POST-0-0	ND_DONE	2008/10/14 07:21:00
POST_ENSEMBLE	ND_FAILED	2008/10/14 07:47:58
WRF-0-1	ND_DONE	2008/10/14 06:54:16
WRF-0-2	ND_DONE	2008/10/14 06:55:21
PREPARE-1	ND_DONE	2008/10/14 06:36:00

NODE	ID	RESOURCE(S)	RESERVATION
PREPARE-0	20923	tg-c280	